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Patent Application of

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of

**Wireless Electrothermal Jug**

**Field of the Invention**

The present invention relates to the technical field of jug, and particularly to a jug, an electrothermal jug and a wireless electrothermal jug for cooking beverage.

**Description of the Prior Art**

The common jug includes a body, which is put on a stove when boiling water, and the water is boiled in the body. As making coffee or tea, if the coffee powder is in the body for cooking beverage, when the beverage is poured out, the coffee powder will be poured out through the spout with the beverage in the jug, and particularly when the water in the jug is in a sloshing state, the coffee powder will be mixed in the beverage and is more likely to be poured out with the coffee beverage. If tea is placed in the body, because the tea will be swollen to a tealeaf with a large area after being soaked by hot water,

when pouring out the tea, the swollen tealeaf is easy to blocking the spout, making the tea in the body unable to be poured out. If the coffee powder and tealeaf are soaked in the hot water for a long time, the taste of coffee or tea beverage produced will become strong, and the beverage with too strong taste is not good for drinking. However, if the beverage made by coffee powder and tealeaf in the body is poured into a cup, it will become cool soon in the cup, which decreases the flavor possessed by the coffee or tea beverage in high temperature condition.

However, as for an electrothermal jug including a body and an electric heater attached therein, if the water is mixed with the coffee powder or tealeaf and then cooked in the body by energizing and heating the jug, the temperature of the external wall of the body will raise up as the heating time passed, which causes the temperature of the external wall of the body becoming more than 100°C. Once touching the external wall of the body, the user is likely to be scalded. If the external wall of the body is made of plastic, the external wall of the body is easy to be aged and damaged because the high temperature condition. If the external wall of the body is made of metal, it is difficult to make various shapes because of the complex manufacture process.

### Summary of the Invention

The object of the invention is to provide a wireless electrothermal jug, which cooks beverage automatically, and is easy for use.

To achieve the object of the invention, said jug includes a body, an inner container located on the inner bottom of the body. A funnel is provided on the up-port of the inner

container. A filtrating up-layer and a filtrating down-layer are arranged in the funnel.

To achieve the object of the invention, said electrothermal jug includes a body, an electric heater on the body, and an electric connector on the body. An inner container is provided on the bottom of the body. A funnel is provided on the up-port of the inner container. A filtrating down-layer is arranged in the funnel and a filtrating up-layer is arranged in the up-port of the inner container.

To achieve the object of the invention, said wireless elctrothermal jug includes a body, an electric heater on the body, a jug-seat for holding the body, a plug and a jack for electrically connecting on the body and jug-seat correspondingly. An inner container is provided on the inner bottom of the body. A funnel is provided on the up-port of the inner container. A filtrating down-layer is arranged in the funnel and a filtrating up-layer is arranged in the up-port of the inner container.

Because an inner container is provided on the inner bottom of the body, when water is put in the inner container and the inner container is heated, the water in the inner container is boiling and overflowing from the up-port. When a funnel is provided on the up-port of the said inner container, the boiling water will enter from the down-port of the funnel and come out from the up-port of the funnel. The coffee powder or tealeaf is placed between the filtrating down-layer and the filtrating up-layer of the funnel, and thereby the boiling water washes the coffee powder or tea in the funnel upwardly, thus forming an auto-cocking. The tea or coffee beverage cocked is between the inner container and the wall of the body, while the coffee powder or tealeaf is sandwiched between the filtrating down-layer and the filtrating up-layer, so the residue of tealeaf or coffee powder is separated from the tea

or coffee beverage, which is convenient for drinking. The high temperature inside the body is conducted outward continuously, so the tea or coffee beverage can be kept at high temperature for a long time, which ensures the flavor of the beverage. As long as the bottom of the inner container is heated by the heating source, the temperature of the external surface of the body is low because it is separated from the heating source, thus preventing the user from scalding.

### **Brief description of the drawings**

FIG.1 is a schematic structural view of the jug for cooking beverage of the invention;

FIG.2 is a schematic structural view of the electrothermal jug for cooking beverage of the invention;

FIG.3 is a schematic structural view of the wireless electrothermal jug for cooking beverage of the invention;

FIG.4 is a structural view of the bottom;

FIG.5 is a bottom view of FIG.4;

FIG.6 is a schematic structural view of a dry frying thermostat;

FIG.7 is a schematic structural view of an over temperature thermostat;

FIG.8 is a schematic structural view of a heat preservation thermostat;

FIG.9 is a schematic structural view of the plug for electrically connection;

FIG.10 is a stereoscopic structural view of FIG.9;

FIG.11 is a stereoscopic structural view of FIG.10, the sheet metal on the top is removed; and

FIG.12 is an inner stereoscopic structural view of FIG.10, the plastic house is removed.

### **Detailed Description**

The embodiments of the present invention will be further described hereinafter with reference to the accompanying drawing.

As shown in the figures, the jug, the electrothermal jug and the wireless electrothermal jug for cooking beverage include a body 1, an electrical heater 2, a jug-seat 3, a plug for electrical connection 4, a jack 5, an inner container 6, a funnel 7, a filtrating down-layer 8, a filtrating up-layer 9, a bottom 10, a dry frying thermostat 11, a heat preservation thermostat 12, a cover 24, an auxiliary electric heater 25, and an over temperature thermostat 28.

The jug for cooking beverage is shown in FIG.1. The filtrating up-layer 9 is disposed on the overlay of the cover 24 covered on the up-port of the inner container 6. A seal ring 30 is disposed between the overlay and the port of the funnel 7. The filtrating down-layer 8 and the filtrating up-layer 9 are wire nettings. While using, water is put into the inner container 6, and the coffee powder or tea is between the filtrating down-layer 8 and the filtrating up-layer 9 and then the jug is put on the fire. The fire burns the bottom of the inner container 6 centrally, and the beverage is produced between the sidewalls of the body 1 and the outside of the inner container 6.

The electrothermal jug for cooking beverage is shown in FIG.2. The electric heater 2 is disposed on the inner bottom 26 of the inner container 6.

An auxiliary electric heater 25 is provided on the outer bottom 27 between the body 1 and the inner container 6.

A dry frying thermostat 11 is disposed on the inner bottom 26. As shown in FIG.6, the dry frying thermostat 11 is constructed as that a dry frying temperature sensitive

bimetallic strip 13 is attached to the bottom 10, a fixed contact plate 16 is touched with a movable contact plate 17 connected in series in the circuit of the electric heater 2, and a dry frying crown bar 18 is disposed between the movable contact plate 17 and the dry frying temperature sensitive bimetallic strip 13.

An over temperature thermostat 28 is disposed on the inner bottom 26. As shown in FIG.7, the structural of the over temperature thermostat 28 is that a spring plate 19 is riveted onto the top sheet metal 18, a rivet 20 with low-temperature-melting-point is riveted onto the sheet metal 18, a fixed contact plate 16a is touched with a movable contact plate 17a connected in series in the circuit of the electric heater 2, a fuse crown bar 21 is disposed between the movable contact plate 17a and the tilting arm of spring plate 19.

A heat preservation thermostat 12 is disposed on the outer bottom 27. As shown in FIG.8, the heat preservation thermostat 12 is constructed as that a heat preservation temperature sensitive bimetallic strip 22 is attached to the bottom 10, a fixed contact plate 16b is touched with a movable contact plate 17b connected in series in the circuit of the electric heater 25, a heat preservation crown bar 23 is disposed between the movable contact plate 17b and the heat preservation temperature sensitive bimetallic strip 22.

The filtrating up-layer 9 is disposed on the overlay of the cover 24 covered on the up-port of the inner container 6.

As shown in FIGs.4 and 5, the inner bottom 26 extends downwardly to form an annular step-like shape with the outer bottom 27. The heat energy generated by the electric heater 2 may be conducted into the inner container 6 centrally. Because a wall of the bottom of the inner container 6 exists between the inner bottom 26 and the outer bottom 27, the inner

container 6 is easy to be soldered onto the bottom 10, and thus the heat generated while soldering the inner container 6 and the bottom 10 will not be conducted to the bottom 10 directly, thereby preventing the electric heater 2 that has been soldered onto the bottom 10 from coming off due to the excessive heat energy generated in the soldering process of the inner container 6 and the bottom 10.

While using, water is put into the inner container 6, and the coffee powder or tea is put between the filtrating down-layer 8 and the filtrating up-layer 9, and then the electric heater 2 is energized to heat. The temperature centralizes and rises at the bottom of the inner container 6, and the beverage is generated between the sidewall of the body 1 and the outside of the inner container 6. When the water in the inner container 6 is boiled away, the temperature of the bottom of the inner container 6 is continues to rise over 100°C Then, the dry frying thermostat 11 acts to cut off power supply upon dry frying, and the electric heater 2 is powered off to stop heating. After water is input into the inner container 6 again, the dry drying thermostat 11 is reset, and the electric heater 2 is energized to heated for cooking beverage again. In the case that the dry frying thermostat 11 is failure, the temperature at the bottom of the inner container 6 still continues to rise until the over temperature thermostat 28 acts to cut off the power supply completely, which protects the electrothermal jug for cooking beverage from being burned out. When the beverage generated during cooking accumulates between the inner wall of the body 1 and the outer wall of the inner container 6, because the water in the inner container 6 is boiled away, the dry frying thermostat 11 cut off the power supply of the electric heater 2 and causes it to stop heating. When the temperature of the beverage decreases to the set temperature, the heat preservation thermostat 12 acts to energize the auxiliary electric heater 25 and enable it to heat, and after the beverage temperature rises to the set

temperature, the electric heater is powered off and stops heating again, which ensures the beverage is kept at suitable temperature to keep and the flavor of beverage.

The wireless electrothermal jug is shown in FIG.3. The electric heater 2 is disposed at the bottom of the inner container 6.

An auxiliary electric heater 25 is disposed on the bottom 10 between the body 1 and the inner container 6. A dry frying thermostat 11 that senses the bottom of the inner container 6 is disposed on the plug 4 used for electric connection. An over temperature thermostat 28 that senses the bottom of the inner container 6 is disposed on the plug 4 used for electric connection. A heat preservation thermostat 12 is disposed on the outer bottom 27. The structure of the dry frying thermostat 11 is the same as that described above. The structure of the over temperature thermostat 28 is the same as that described above. The structure of the heat preservation thermostat 12 is the same as that described above.

The filtrating up-layer 9 is disposed on the overlay of the cover 24 covered on the up-port of the inner container 6.

As shown in FIGs.9, 10, 11, 12, the dry frying thermostat 11 and the over temperature thermostat 28 are disposed in the plug for electric connection 4; in which a dry frying temperature sensitive bimetallic strip 13 is attached onto the bottom 10, a fixed contact plate 16 (connected with the contact plate 14 for electric connection and electrode 15) and a movable contact plate 17 are provided in the plug 4 for electric connection; a dry frying crown bar 18 is disposed between the movable contact plate 17 and the dry frying temperature sensitive bimetallic strip 13. The over temperature thermostat 28 has a spring plate 19 riveted onto the sheet metal 18 at the top of the plug 4. A rivet 20 possessing low-temperature-melting-point riveted onto

the sheet metal 18 is provided on the tilting arm of the spring plate 19. A fixed contact plate 16 and a movable contact plate 17 connected to the contact plate 14 for electric connection and electrode 15 are provided in the plug 4 for electric connection. A fuse crown bar 21 is disposed between the movable contact plate 17 and the tilting arm of the spring plate 19.

As shown in FIGs 2, 5, a heat preservation thermostat 12 is provided on the outer bottom 27. The inner bottom 26 extends downwardly to form a step-like shape with the outer bottom 27.

Because a jug-seat 3 is disposed below the body 1, the plug 4 and jack 5 for electric connection are on the body 1 and the jug-seat 3, the wireless jug differs from that of the electrothermal jug for cooking beverage. The difference lies in that the electric power line is set on the jug-seat 3, the power is conducted to the electric heater 2 and the auxiliary electric heater 25 through the plug 4 and jack 5 for electric connection, which causes the jug easy for use because there is no power line on the body 1 when pouring out beverage. The dry frying thermostat 11 and the over temperature thermostat 28 are disposed in the plug 4 for electric connection, so the structure is compact and it is easy to assemble.